

Assessing aggression severity with the Revised Staff Observation Aggression Scale.

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Brief Reports

Assessing Aggression Severity with the Revised Staff Observation Aggression Scale

Instruments for measuring the aggression of psychiatric patients can be roughly divided into self-rating and observer aggression scales (Bech, 1994). Bjørkly (1995) noted that "major problems in obtaining self-report measures from psychotic patients complicate this approach to prediction research" (p. 493). On a related note, Yudofsky et al. (1986) suggested that "many patients are not angry between aggressive episodes and do not reliably recall or admit to past violent events" (p. 35).

For these reasons, most epidemiologic and intervention studies on inpatient aggression rely on information provided by others, usually nursing staff members. A widely used instrument is the Staff Observation Aggression Scale (SOAS) of Palmstierna and Wistedt (1987). Initial testing of the SOAS showed satisfactory reliability (Nijman et al., 1997; Palmstierna and Wistedt, 1987). Palmstierna and Wistedt (1987) reported an intraclass correlation of the total SOAS scores of .96 between independent observers. On the basis of this and other SOAS findings, Shah et al. (1991) believed the SOAS to be an instrument "of particular interest...with evidence of good reliability and validity" (p. 307).

The validity of SOAS severity ratings has been addressed in several studies. For example, Shah et al. (Shah and De, 1997; Shah et al., 1997) cross-validated SOAS severity scores with those of the Rating Scale for Aggressive Behavior in the Elderly. Correlations between Rating Scale for Aggressive Behavior in the Elderly scores and SOAS severity scores were found to be quite high in both studies ($r = .81$ and $.79$, respectively). Using a different approach, Nijman et al. (1999) correlated SOAS severity ratings with clinical judgments of severity made by staff members. Clinical severity ratings correlated moderately ($r = .38$) but significantly with the original SOAS severity ratings as proposed by Palmstierna and Wistedt (1987).

To approximate the clinical judgments of staff more closely, Nijman et al. (1999) proposed a revised severity scoring system. The rationale behind this revised severity scoring system was that the severity of aggressive behavior depends on an array of features, with some, such as the consequences for victims, being more important than others (e.g., means used by the aggressive patient). With regression techniques an empirically validated severity scoring system was developed in which separate features are weighted in a way that they make a differential contribution to the overall aggression severity score. The aim of the current study is to further evaluate the validity of the proposed severity scores of the revised SOAS (i.e., the SOAS-R; Nijman et al., 1999) by cross-validating them with the judgments of staff members of the severity of incidents occurring at four locked psychiatric wards.

Methods

On four psychiatric admissions wards, inpatient aggressive behavior was systematically monitored during 4-month periods by means of the SOAS-R¹ (Nijman et al., 1999). Two wards (5 and 20 beds, respectively) were at psychiatric hospital Welterhof, Heerlen, The Netherlands, and the other two wards (13 and 14 beds, respectively) were at the psychiatric hospital Broeders Alexianen in Tienen, Belgium.

The small five-bed ward at Welterhof specializes in the treatment of involuntarily admitted adolescents suffering from severe psychiatric disorders (e.g., early onset schizophrenia). On this ward, aggressive behavior was monitored from the opening day (June 14, 1999) onwards. The other three wards are locked admission wards for both voluntarily and involuntarily admitted, mostly psychotic, adult patients. On these adult wards, aggression was also monitored for 4 months, starting February 1, 1998.

Staff members who observed inpatient aggression completed the SOAS-R, a revised version of the SOAS of Palmstierna and Wistedt (1987). As was the case with the original SOAS, the SOAS-R consists of five columns, each pertaining to specific aspects of aggressive behavior (i.e., antecedents, means used by the patient during the aggression, target of the aggression, consequences, and measures taken to stop aggression). Several new elements were also added to the SOAS-R (see Nijman et al., 1999), of which the revised severity scoring system is the most important. The revised severity scoring system allows researchers to derive a more fine-grained overall severity score for each incident. The new severity scores were developed on statistical grounds (Nijman et al., 1999). Total SOAS-R severity scores can range between 0 and 22, with higher scores indicating higher severity (the original SOAS severity scoring system relied on a relatively narrow range, with a maximum score of 12 to index severity).

After completing the SOAS-R, staff members were asked to provide an estimate of the severity of the aggressive incident they had just witnessed on a 100-mm Visual Analogue Scale (VAS) ranging from "not severe at all" (the 0 mm or left end of the VAS) to "extremely severe" (the 100 mm or right end of the VAS). No carry-over effects from SOAS severity scores to VAS ratings were expected. That is to say, the severity scores are not printed on the SOAS-R forms used in clinical practice. In this way, observers only have to provide factual information about what happens during aggressive incidents (e.g., the patient took a chair and smashed a window with it), and researchers can derive an overall severity score post hoc from this information.

To further evaluate the validity of the revised SOAS-R severity scores, correlations (Pearson's r and Spearman's ρ) between SOAS-R and VAS severity scores were calculated.

¹A copy of the SOAS-R and the SOAS-R severity scoring system can be obtained from Dr. Nijman.

Pearson's correlations were calculated after partialling out the effects of working experience and gender of the completing staff member because it is likely that these variables modulate the perception of aggression severity. Indeed, working experience was found to be negatively associated with estimates of aggression severity in a previous study (Nijman et al., 1999).

Results

In total, 301 aggressive incidents were recorded on the four wards. In line with earlier findings (Nijman et al., 1997; Nijman et al., 1999; Palmstierna and Wistedt, 1987), staff members in 100 incidents, or 33% of the total, reported on the SOAS-R that they did not understand what exactly triggered the aggressive behavior they had observed. In cases in which there was a clear trigger, aggression was provoked most often by a denial of a patient's request (82 of the 301 incidents, 27%). According to the staff, 15% (44) of the incidents were provoked by fellow patients' behavior. Aggression as a reaction to a request of staff members to take medication was also relatively common (37 incidents, or 12%).

Over half of the reported incidents (183 of 301 incidents, 61%) involved physical aggression (*e.g.*, throwing objects or biting, kicking, or hitting at persons). In most cases, staff members were the targets of aggression, which is in line with previous results (*e.g.*, Nijman et al., 1997; Shah et al., 1991). More specifically, 205 of the 301 incidents (68%) were directed against ward personnel. In 58 instances, fellow patients (19%) were the main targets of the aggression; 26 incidents (9%) involved auto-aggressive behavior. In 105 incidents (35%), the patient had to be secluded (with or without the use of further mechanical restraints) in order to prevent further violence or dangerous behavior.

The 26 auto-aggressive incidents were excluded from the correlational analyses. For 262 of the 275 outwardly directed aggressive incidents (95%), VAS severity estimates provided by staff members were available. Mean estimate of severity was 45.2 on the 100-mm VAS ($SD = 28.3$). Staff members who completed the VAS had worked in mental health care for an average of 10.3 years ($SD = 9.2$). Consistent with earlier findings (Nijman et al., 1999), years of working experience was negatively linked to estimates of aggression severity ($r = -.29$, $p < .01$). In other words, the longer a person works in mental health care, the lower his or her severity ratings are. Of the 262 VASs, 67% had been completed by male staff members and 33% by female staff members. There was no difference in the mean estimate of severity of male and female staff ($p = .28$, two-tailed).

With the 12-point scoring system of the original SOAS (Palmstierna and Wistedt, 1987), average severity of the incidents was 4.7 ($SD = 1.4$; range, 1 to 11). With the newly developed severity scoring system of the SOAS-R, mean severity of the incidents was 10.4 ($SD = 5.0$; range, 1 to 20). As could be expected, original and revised severity scores of the SOAS were significantly associated with each other ($r = .63$, $p < .01$).

Table 1 shows correlations between SOAS-R severity scores and VAS severity scores. As can be seen, the revised SOAS-R severity scores approximate clinical judgments more

TABLE 1
Correlations Between SOAS and SOAS-R Severity Scores, and VAS Severity Scores

| | Correlations with VAS Severity ^a | | |
|--|---|-------------------|---------------------------------|
| | Pearson's <i>r</i> | Spearman's ρ | Pearson's <i>r</i> ^b |
| Original SOAS severity scores (presented in 1987) | 0.39 | 0.39 | 0.38 |
| Revised SOAS-R severity scores (presented in 1999) | 0.64 | 0.65 | 0.62 |

^a All correlations are significant beyond the 0.01 level (two-tailed).

^b Controlling for working experience and gender.

closely than the original SOAS scores do. After controlling for years of working experience and gender, the overall correlation of the revised SOAS-R severity scores with VAS severity estimates was .62, whereas that between original SOAS severity and VAS scores was .38. A comparison between the two pertinent correlations by means of Z-transformation (Kleinbaum et al., 1988) showed that the correlation between the revised SOAS severity scores and VAS scores was significantly higher ($p < .01$) than that between original SOAS severity and VAS scores.

Discussion

The present study sought to validate the severity scoring system of the SOAS-R against clinical judgments. Using a large pool of aggressive incidents from two different psychiatric hospitals, SOAS severity ratings were compared with clinical judgments of aggression. Both the original and the revised SOAS-R severity scores were found to be significantly associated with VAS judgments of aggression severity. However, as was the case in a previous study (Nijman et al., 1999), the newly developed SOAS-R severity system tapped clinical estimates of severity significantly better than the original SOAS severity scores (Palmstierna and Wistedt, 1987).

Of course, one can question our strategy of validating the SOAS-R severity ratings against clinical judgments. In general, clinical judgments have had bad press in psychiatric literature (*e.g.*, Dawes et al., 1989; Harris and Rice, 1997). However, the critique of clinical judgment largely pertains to the prediction of aggression (*e.g.*, Harris and Rice, 1997), rather than the evaluation of aggression severity. There is no a priori reason to suspect that staff members are not able to provide a reasonably accurate estimate of the severity of aggression they witness. In fact, as there is no objective gold standard of aggression severity, the judgment of professionals who work with aggressive patients on a daily basis seems to be a sound starting point for validating the severity scoring systems of the various aggression measurement tools. Meanwhile, one could argue that simple VAS severity judgments alone should be used, rather than SOAS-R severity scores. Note, however, that the severity ratings of the SOAS-R are part of a more comprehensive system for monitoring inpatient aggressive behavior. By developing and adding a validated severity scoring system to the SOAS, the SOAS-R becomes a good research tool for those studies that examine the effects of particular interventions (*e.g.*, pharmacological

versus behavioral) on aggression frequencies and severity. Indeed, in its current form, the SOAS-R, is a time-efficient and easy-to-use observation scale that provides factual information about a broad array of characteristics of aggressive incidents (e.g., provocation, consequences, measures taken to stop aggression) as well as on their severity.

References

- Bech P (1994) Measurement by observations of aggressive behavior and activities in clinical situations. *Crim Behav Ment Health* 4:290-302.
- Björkly S (1995) Prediction of aggression in psychiatric patients. A review of prospective prediction studies. *Clin Psychol Rev* 15:475-502.
- Dawes RM, Faust D, Meehl PE (1989) Clinical versus actuarial judgment. *Science* 243:1668-1673.
- Harris GT, Rice ME (1997) Risk appraisal and management of violent behavior. *Psychiatr Serv* 48:1168-1176.
- Kleinbaum DG, Kupper LL, Muller KE (1988) *Applied regression analyses and other multivariable methods*. Belmont, CA: Duxbury Press.
- Nijman HLI, Allertz WWF, Merckelbach HLGJ, à Campo JMLG, Ravelli DP (1997) Aggressive behaviour on an acute psychiatric admissions ward. *Eur J Psychiatry* 11:106-114.
- Nijman HLI, Muris P, Merckelbach HLGJ, Palmstierna T, Wistedt B, Vos AM, van Rixtel A, Allertz WWF (1999) The Staff Observation Aggression Scale - Revised (SOAS-R). *Aggr Behav* 25:197-209.
- Palmstierna T, Wistedt B (1987) Staff observation aggression scale. Presentation and evaluation. *Acta Psychiatr Scand* 76: 657-663.
- Shah AK, Fineberg NA, James DV (1991) Violence among psychiatric inpatients. *Acta Psychiatr Scand* 84:305-309.
- Shah A, Chiu E, Ames D (1997) The relationship between two scales measuring aggressive behavior among elderly nursing home residents. *Int J Geriatr Psychiatry* 12:628-631.
- Shah A, De T (1997) The relationship between two scales measuring aggressive behavior among continuing-care psychogeriatric inpatients. *Int Psychogeriatr* 9:471-477.
- Yudofsky SC, Silver JM, Jackson W, Endicott J, Williams D (1986) The overt aggression scale for the objective rating of verbal and physical aggression. *Am J Psychiatr* 143:35-39.

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Executive and Motor Skill Functioning among Cocaine-Dependent Schizophrenics and Non-Drug-Abusing Schizophrenics

Although a wealth of research exists regarding the cognitive consequences of schizophrenia and cocaine dependence separately, little is known about individuals with schizophrenia who have co-occurring cocaine dependence. This

gap in research is unfortunate considering that up to 50% of individuals diagnosed with schizophrenia abuse cocaine (Ziedonis and Fisher, 1994). Previous research suggests that cocaine-dependent schizophrenics display better social and cognitive abilities despite having worse long-term functional outcomes (Penk et al., 2000; Sevy et al., 1990). This paradoxical clinical presentation can result in treatment planning difficulty, staff frustration, and, ultimately, higher use of services.

The neuropsychological studies that have been conducted with non-substance-abusing schizophrenics suggest a diffuse pattern of cognitive impairment in memory, attention, verbal fluency, visual-motor skills, and executive functioning domains (Saykin, et al., 1991). These cognitive deficits are often correlated with more profound schizophrenic symptoms and a worsening of functional outcome. It is particularly noteworthy that deficiencies in executive and motor skills functioning are linked to symptom exacerbations among non-substance-abusing schizophrenics (Harvey et al., 2001).

In terms of individuals who were dually diagnosed with schizophrenia and cocaine dependence, a review of the literature dating back to 1980 indicates that four published articles have focused on cognition. Within these studies, the motor and executive functioning domains appear most contradictory. Sevy et al. (1990) found that 16 cocaine-dependent schizophrenic patients performed better than 35 non-substance-abusing counterparts on tests measuring psychomotor speed. On the other hand, Nickou et al. (in press) compared 20 cocaine-dependent schizophrenics with 20 nonschizophrenic cocaine addicts and found that the cocaine-dependent schizophrenics did significantly worse on cognitive tasks in the motor and executive functioning domains. Both Serper et al. (2000) and Cooper et al. (1999) found no differences in executive and motor tasks when comparing schizophrenics to cocaine-abusing schizophrenics. Clarifying these inconsistent findings would be helpful because impairment in cognition, particularly the motor and executive domains, has been associated with poor social functioning (Addington and Addington, 1999) and feelings of helplessness and hopelessness (Lysaker, et al., 2001) in non-substance-abusing schizophrenics.

We were interested in examining the cognitive domains of psychomotor speed and executive functioning, to further explore why individuals with schizophrenia often present as socially and cognitively more intact despite having a more chronic and severe psychiatric history. Subjects were matched on age, race, socioeconomic status, and symptom severity to ensure that any differences would be due to cognitive abilities. We hypothesized that individuals with schizophrenia and cocaine dependence would perform better on tasks that involve executive functioning and motor performance, as it has been shown that cocaine-dependent schizophrenics tend to have less severe symptom severity and better social functioning (Ziedonis & Fisher, 1994).

Methods

A cohort of 33 research subjects, 16 cocaine-dependent schizophrenics and 17 schizophrenics without cocaine dependence, were recruited from the Veterans Administration